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Briefing Report to the Chairman,
Committee on Armed Services
House of Representatives

March 1986

COMPLETED

MISSILE DEVELOPMENT

Advanced Medium Range Air-To-Air Missile Legal Views and Program Status

GAO/NSIAD-86-88BR

UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

NATIONAL SECURITY AND
INTERNATIONAL AFFAIRS DIVISION

March 28, 1986

B-221734

The Honorable Les Aspin
Chairman, Committee on Armed Services
House of Representatives

Dear Mr. Chairman:

This is in response to your February 4, 1986, request that this Office review the Secretary of Defense's written certification concerning the current status and future costs of the Advanced Medium Range Air-to-Air Missile (AMRAAM) program and provide a formal written ruling whether the certification fulfills the requirements established by section 210 of Public Law 99-145.

Attached is a copy of the March 11, 1986, statement by James F. Hinchman, Deputy General Counsel, General Accounting Office, on the AMRAAM certification before the Subcommittee on Procurement and Military Nuclear Systems. Mr. Hinchman stated on behalf of the GAO that we do not believe that there is any legal basis to object to releasing $54.4 million held in reserve pending certification solely because of disagreement with conclusions or judgments that the Secretary of Defense reached in executing the certification. However, Mr. Hinchman pointed out that our legal view regarding the Secretary's certification does not mean there are no longer any grounds for the concerns which led to the enactment of section 210. There continue to be uncertainties about the cost, schedule, and performance of the AMRAAM program.

Sincerely yours,

Frank C. Conahan

Frank C. Conahan
Director

UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

FOR RELEASE ON DELIVERY
MARCH 11, 1986

STATEMENT OF

JAMES F. HINCHMAN

DEPUTY GENERAL COUNSEL

BEFORE THE

COMMITTEE ON ARMED SERVICES

SUBCOMMITTEE ON PROCUREMENT AND MILITARY NUCLEAR SYSTEMS

UNITED STATES HOUSE OF REPRESENTATIVES

ON

ADVANCED MEDIUM RANGE AIR-TO-AIR MISSILE (AMRAAM)

CERTIFICATION

Mr. Chairman and Members of the Committee:

I am pleased to appear before the Subcommittee today to discuss the views of the General Accounting Office on the certification which the Secretary of Defense has provided Congress under section 210 of the 1986 Defense Authorization Act concerning the advanced medium range air-to-air missile (AMRAAM) program.

As this Subcommittee knows, the 1986 Act authorized approximately $101.4 million in Air Force research, development, test, and evaluation funds for the AMRAAM program. Section 210 provides that approximately $54.4 million of the amount appropriated under this authorization may not be obligated or expended until the Secretary of Defense gives the Committees on Armed Services of both Houses of Congress a certification concerning the current status and future cost of the program. The statute also provides that the AMRAAM program will be terminated if the Secretary of Defense does not make this certification. Section 210 describes in detail what must be certified:

--That design of the AMRAAM system is complete.

--That system performance has not been degraded from the original development specification, as amended.

--That the flight test program has been revised to incorporate the maximum practicable number of design changes that reduce costs and are qualified and flight tested before production.

--That there is a fixed-price type contract for not more than approximately $556.6 million for research, development, test, and evaluation of the program.

--That the total production cost for the program, for a minimum of 17,000 missiles, will not exceed $5.2 billion in fiscal year 1984 dollars, and that the missile will perform in accordance with the development specification.

On February 28, the Secretary gave his certification to the two Committees. In it, the Secretary certifies to precisely those things to which section 210 requires him to certify. Indeed, the certification repeats, word for word, the language of the statute. Attached to the certification is a statement of additional information that gives some explanation of the basis on which the certification was made. Chairman Aspin has asked us to review the certification and consider whether it fulfills the requirements of section 210.

The certification which is required of the Secretary by section 210 is not a ministerial act. Some elements of the

section are open to varying interpretations. In particular, there are the questions of what is meant by "design completion" and the cost for "a minimum of 17,000 missiles" when current planning and cost projections are based on the procurement of 24,000 missiles.

Some of the matters to which the Secretary must certify call for the exercise of judgment. For example, it is a matter of judgment whether the maximum practicable number of cost reducing changes have been incorporated in the design of the system. Some judgment is also involved in deciding whether system performance has been degraded. As noted below, several system engineering changes are being considered which may degrade system performance.

Some matters to which the Secretary must certify, e.g., the production cost of 17,000 missiles, require forecasting the future.

These questions of interpretation, judgment, forecasting, and the underlying factual situation out of which they arise, are all matters on which views can differ. The statement that accompanies the Secretary's certification, as well as our review of the certification process, give us some information regarding his views. Those views are not universally shared. But it is the Secretary who is charged with making the certification on

which the continuation of the AMRAAM program and the availability of some $54.4 million for it are dependent. He is, therefore, necessarily the one who has the responsibility for reaching the conclusions and judgments required to determine if the certification can be given. The Secretary has concluded he can provide the certification required by section 210. We do not believe there is any legal basis for objecting to the release of the $54.4 million held in reserve pending the Secretary's certification solely because of disagreement with conclusions or judgments that he reached in executing it.

This does not mean that there are no longer any grounds for the concerns which lead to the enactment of section 210. Uncertainties as to cost, scheduling, and performance remain. With this in mind, Mr. Chairman, I would now like to summarize the results of our review of the AMRAAM certification process. We have previously provided Chairman Aspin with a briefing report on some of these matters, "Missile Development--Status of Advance Medium Range Air-to-Air Missile (AMRAAM) Certification" (GAO/NSIAD 86-66BR, February 18, 1986). The material which follows is based on this briefing report and subsequent audit work on the AMRAAM certification process.

Design Completion

The Secretary's certification is based on (1) the completion of activities associated with the Critical Design Review (CDR)--an analysis of the AMRAAM basic design--and (2) congressional recognition that design refinements, including those intended to reduce cost, are normal during the development stage of a missile. However, at the time of the certification, contractor action had not been completed on 10 percent of the changes required as a result of the CDR; and the design and integration of software tapes--which are necessary for the full testing of AMRAAM capabilities--had not been finished. Design refinements will continue to occur during testing, evaluation, and production to enhance reliability and producibility.

Performance Specification Degradation

Flight testing, laboratory environmental qualification testing, simulation, and basic design information were among the data reviewed before the Secretary certified that system performance had not been degraded from the development specifications as amended. However, the early flight test missiles had a number of deviations from contract specifications, which, if not corrected, could impair missile performance. DOD officials believe that these deviations are temporary and/or minor or acceptable. In our opinion, pending engineering change proposals could also reduce performance.

Flight Test Program Revisions for Cost Reduction Design Changes

The program plan for design changes resulting from cost reductions (Producibility Enhancement Plan) calls for the appropriate testing of design changes before they are incorporated into missile production. However, few, if any, changes will be qualified, flight tested, and integrated into production lots 1 and 2, which total about 1,000 missiles. Critical cost reduction changes are scheduled to be flight tested before production of lots 3 and 4, which total about 5,000 missiles. Any slippages in the production of lot 1 could delay the flight testing of cost reduction changes even further.

Full-Scale Development Ceiling of $556.6 Million

The Air Force entered into a fixed-price type contract with Hughes Aircraft in December 1981 for the research, development, test, and evaluation of the AMRAAM program. Before the enactment of the DOD Authorization Act, 1986 (November 8, 1985), recordable obligations with the development contractor (Hughes Aircraft) exceeded the Act's ceiling by about $200,000. The obligations were adjusted downward through a contract modification to comply with the certification ceiling. Nevertheless, the AMRAAM program manager has indicated that government costs

above the ceiling are needed to permit flexibility in missile testing. An additional AMRAAM test site at Eglin Air Force Base would be opened and a third captive flight test vehicle procured. The program manager stated that no additional government funding is, however, needed for missile design.

Production Cost - $5.2 Billion
Ceiling for Minimum 17,000 Missiles

The Secretary's certification of $5.2 billion 1984 fiscal year dollars for a minimum of 17,000 missiles is based on a combined Air Force/Navy program of approximately 24,000 missiles.

Even assuming a program of 24,000 missiles, if only 17,000 Air Force and Navy missiles are produced, the cost in 1984 fiscal year dollars would be in excess of the $5.2 billion ceiling by about $500 million.

Also, the Secretary's certification reflects a number of assumptions which may cumulatively reduce confidence in achieving the cost estimate. Some principal assumptions are that (1) joint service funding will approach about $1 billion annually for the 9-year period beginning with fiscal year 1988; (2) no model or major design changes will be made over the next 10 years; and (3) no significant schedule slippages will occur.

Missile Performance

Several flight tests have so far been conducted to determine whether the missile will perform in accordance with the development specification. These include three guided live firings and two separation/control flights, all of which were considered successful by the program office. However, the last four launch attempts have been aborted.

To attain a high degree of confidence that the missile will achieve its performance specification, a large number and variety of tests remain to be conducted. These tests were not scheduled for completion by March 1, 1986. The current plan calls for 90 scheduled flights in four kinds of aircraft by 1988.

Mr. Chairman, that concludes my testimony. I welcome any questions concerning the matters discussed.

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